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FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS
WASHINGTON, D.C., U.S.A.

Note

Volume III of the Fisheries Bulletin, now appearing under a new cover, will provide a wider coverage of the fisheries field. This has been made possible by the rounding out of the Headquarters staff of the Fisheries Division. The Technological and Biological Branches, as well as the Economics Branch, are now in operation to the extent that possibilities allow.

It is felt that the audience of the Fisheries Bulletin - government administrators, fisheries executives and workers - will find this more extended coverage useful. In key with this new approach the statistical material will be confined to more salient features and presented with a textual discussion of trends.

The Notes on Publications will include short descriptions of monographs and other separate publications and will now cover the fields of economics and biology in addition to technology. These notes, however, are not to be confused with FAO's World Fisheries Abstracts which will appear shortly as a separate publication.

Economic Notes

TRENDS IN SUPPLY AND DEMAND 1949*

Primary Production

In the twelve countries for which information on 1949 activities has been made available, total landings in 1949 may reach the same level as in 1948 but are not likely to exceed it. According to Table 1, landings in 1949, as far as they have been recorded, amounted to 99 percent of comparable landings in 1948.

Table 1. - Landings of Fish, Prewar, 1946, 1947, and 1948 and Preliminary Figures for 1949 Landings Compared with Landings During Same Period in 1948

Country	Calendar year				Partial year			1949 as percentage of 1948
	Average 1934-38 a/	1946	1947	1948	Period covered	1948	1949	
	(..... Metric tons b/ .....)					(.....Metric tons c/ ...)		(Percent)
Canada d/	506 000	612 000	553 000	644 000	Jan.-Oct. e/	474 200	449 000	95
Denmark f/	90 900	197 400	205 400	223 500	Jan.-Sept.	168 000 g/	178 500 h/	106
France i/ (1933-37)..	315 400	244 500	306 600 j/	434 600 j/	Jan.-Oct. k/	83 100	76 400	92
Germany Bizone (1938)	669 000	264 800	279 800	380 200	Jan.-Sept.	248 600	304 300	122
Iceland	268 900	368 200	477 200	464 700	Jan.-Oct.	372 100	308 300	83
Ireland	10 500	21 100	18 300	23 100	Jan.-Sept. e/	15 200	8 000	53
Japan (1936) l/	3 078 300	3 177 500 m/	2 472 100	2 028 300 n/	Jan.-Sept. o/	1 379 600	1 733 500	126
Netherlands	227 500	190 400	278 100	269 400	Jan.-Oct.	195 900	161 900	83
Norway	1 055 700	933 300	1 205 300	1 454 100	Jan.-Sept. p/	1 038 800	746 600	72
Sweden	116 000	183 900	163 400	230 700 q/	Jan.-June	71 400	60 400	85
United Kingdom	1 162 100	1 031 900	1 138 600	1 195 700	Jan.-Oct.	890 700	832 400	93
U.S.A.	1 927 000	1 996 000	2 345 000	2 040 000	r/	1 220 600 r/	1 240 800 r/	102
Total	9 427 300	9 221 000	9 442 800	9 388 300		6 158 200	6 100 100	99

SOURCES: Official publications and special reports.

a/ Unless otherwise indicated.
b/ Round fresh weight except for Germany which is reported weight.
c/ Reported weight unless otherwise indicated. It should be noted that partial year data are on a different basis than calendar year data; in most instances, the latter were given in sources on a round fresh weight basis or converted from the reported weight to a round fresh weight basis.
d/ Excluding Newfoundland.
e/ Sea fisheries only.
f/ Faroe Islands and Greenland not included.
g/ Including 17,003 tons landed directly in British harbors and 117 tons landed directly in Swedish harbors.
h/ Including 13,345 tons landed directly in British harbors.
i/ Excluding shellfish.
j/ Metropolitan France only.
k/ Landings of tuna, sardines, mackerel, and cod.
l/ Excluding seaweed.
m/ Including black-market estimate of 1,420,800 tons and excluding 34,100 tons of whales.
n/ Excluding unreported landings estimated to be an additional 15 percent.
o/ Reported landings only; estimated to be between 80-90 percent of the total landings. Whales and seaweed are included Jan.-Sept. 1949 and possibly Jan.-Sept. 1948.
p/ Winter herring, spawning cod and Finnmark cod, fat and small herring and mackerel only.
q/ Landings in Swedish ports - 183,200 tons.
r/ Round fresh weight. Landings at Maine ports Jan.-Sept.; landings at Massachusetts ports Jan.-July; landings at Texas ports Sept.-Oct.; and landings of pilchards 1 Jan.-16 Nov.; landings of tuna Jan.-Oct.; menhaden Jan.-Oct.; and the entire season for salmon and Alaska herring.

* This survey was completed on 19 December. It contains an appraisal of the material which had been made available up to that date.

The twelve countries dealt with in Table 1 represented some 9,400,000 metric tons of fish annually (round fresh weight basis) in 1934-38, which is about half of estimated world landings prewar. Total landings figures for these twelve countries show that their 1946-48 aggregate annual landings were almost equal to those of prewar. In most countries 1948 landings were in excess of prewar, but in Germany and Japan they were still considerably below prewar. In 1949, however, the situation changed: Landings in most countries were appreciably smaller than in 1948, while landings in Germany and Japan were more than 20 percent higher than in the corresponding period in 1948 but still smaller than those of prewar. The U.S.S.R. is not included in Table 1, but it is interesting to note that an estimate which appeared in a United States source, and which is believed to be conservative, places production in the U.S.S.R. at 1,791,000 metric tons in 1949 compared with 1,445,000 tons in 1948.

One of the reasons why 1949 landings in Europe lagged behind those of 1948 may have been the less favorable natural conditions in the North Sea and other northeastern Atlantic areas. Weather was often bad, and some species seem to have been less abundant. There was a tendency for Europeans to intensify their cod fishing off Greenland where fishing proved to be good. Norwegian winter herring fisheries gave very favorable results, but less favorable than in the previous year. The Netherlands and United Kingdom fishermen experienced smaller catches of herring in the North Sea during the summer and autumn seasons. Herring fisheries off Iceland, however, where many nationalities participated in the summer and fall, gave generally good results.

Reports from other regions of the world on conditions under which fisheries were carried on are very few. In Japan the appearance of more sardines in Japanese waters seems to have been the principal reason for greater landings. On the West Coast of the United States of America sardine landings in 1949 were three times as great as in 1948 (189,000 tons compared with 63,000 tons). Tuna landings were almost the same as the previous year (126,000 tons compared with 120,000 tons in 1948); salmon landings showed an increase of about 10 percent; menhaden landings were down by some 15 percent. The Alaska herring fisheries were very poor.

In Denmark, the mid-water trawl was put into operation. This trawl may be the year's most important innovation in the gear field, and it has been studied with great interest in other countries.

Fishing Fleets

Many countries reported further additions to their fishing fleets during 1949. In Canada, the number of craft over 40 tons was more than double the number in 1939. For the first time in history, five Danish fishing craft operated off the coast of Northern Norway, and both Danish and Norwegian craft intensified their fishing off Greenland, where fishing craft from Portugal, Spain, France, Iceland, and the United Kingdom were also reported to be present. An increasing number of trawlers from many countries visited the East Atlantic fishing grounds north of the Arctic circle.

The United Kingdom put 40 new long-distance trawlers into operation in 1949, and there was a considerable net increase in the catching capacity. Iceland also added to her trawling fleet and made plans for the construction of 10 additional trawlers by means of a loan from the United Kingdom. In France the reconstruction of wooden fishing craft was completed. Of the 49 French steel vessels which were to be constructed 27 were engaged in the production of salted cod in 1949; the balance are expected to be

delivered before the end of 1950. In Germany, an increase of 40 to 50 trawlers was planned in 1949, and by 31 August 1949 the German trawler fleet numbered 223 which is about half the strength of prewar. The German coastal fleet was less depleted and secured a greater share of the total catch. In India, the government is examining the possibilities for the construction of small craft fitted with 5 to 7 horsepower engines. It is also reported that two Dutch trawlers have been acquired by India for deep-sea fishing off Bombay. In Indonesia a shipyard was established in Buton and the first fishing vessel will take the water towards the end of 1949. Indonesian plans call for the construction of a total of 40 vessels between 1948 and 1951. In the Netherlands, efforts are now being made to operate larger craft which can extend their operations beyond the North Sea to the Barents Sea and to Icelandic waters. The present total tonnage of the Norwegian fishing fleet is estimated at 245,000 gross tons compared with 230,000 gross tons in 1940, reflecting a net increase of 116 craft from June 1948 to February 1949. The use of 50 motor craft in the development of fisheries in the waters of the Dominican Republic was authorized by the government. In the United States of America, 729 craft were entered on the registry of fishing craft during the first eight months of 1949 compared with 844 during the same period of 1948.

Processing

The postwar tendency to market more of the catch as fresh and frozen continued in 1949 with some signs of a recession in the expansion of frozen fish industries.

World production of salted cod and related species in 1949 is unlikely to be much greater than 1948 production. Although France, Portugal, and Spain increased their salted fish production for domestic markets, total landings of cod and related species were smaller in some countries and the quantity used for salted fish production therefore continued to decline. In 1950, however, there are prospects of a sizeable expansion due partly to the expansion of the fishing fleet in Iceland and the diversion of more fishing effort from Europe to the Northwest Atlantic grounds. The production of salted winter herring in Norway was high in 1949 but is likely to be much reduced in 1950. The tuna pack in the United States of America may reach a new maximum.

International Trade

Total export figures for a small number of countries are given in Table 2. Trade figures now available for 1949 are, in the aggregate, somewhat lower than corresponding figures for previous years. Exports of fresh and frozen products, however, were higher in 1949 than in the previous year, due mainly to a further increase in the exports of Iceland, Denmark, Sweden, and the Netherlands.

Imports of fisheries products into a few countries are shown with aggregate figures in Table 3. This table indicates a recession in international trade. The increase in imports of fresh and frozen products is mainly due to the fact that Bizonal Germany imported 155,000 tons of fresh and frozen fish during January-September 1949 compared with 132,000 tons during the corresponding part of 1948, and 151,000 tons in the 12 months of 1938. Imports into the United Kingdom of fresh and frozen fish showed a decline of 20,000 tons.

Table 2. - Exports of Certain Fisheries Commodities by Principal Exporting Countries, 1938, 1946, 1947, 1948, and Latest Available Period of 1949 (Preliminary Figures) Compared with Same Period in 1948

Commodity	No. of countries included	Calendar year				Partial year [a]	
		1938	1946	1947	1948	1948	1949
		(..... Metric tons .....)				(... Metric tons ....)	
Fish, fresh or frozen	6	280 547	377 852	416 564	537 861	425 074	447 040
Fish, dried, salted, or smoked [b]	6	323 827	319 723	326 931	338 851	228 029	223 744
Fish, canned [b]	8	130 556	217 243	231 167	161 042	119 229	87 602
Crustaceans and molluscs [b]	6	58 762	36 365	60 664	62 157	30 179	34 720
Fish oils [c]	6	128 108	49 804	61 634	76 597	51 422	35 494
Fish meal and fertilizer	4	123 226	26 772	26 266	77 395	52 373	33 933
Aquatic mammal oils and fats [c]	4	6 592	14 114	40 290	6 354	4 103	8 903
Total		1 051 618	1 041 873	1 163 516	1 260 257	910 409	871 436

a/ Data in these columns represent latest available information for 1949, the first 6 to 10 months, compared with a corresponding period of 1948.
b/ Some crustaceans and molluscs are included with dried, salted, or smoked fish and with canned fish.
c/ "Fish oils" includes some aquatic mammal oils.

Table 3. - Imports of Certain Fisheries Commodities by Principal Importing Countries, 1938, 1946, 1947, 1948, and Latest Available Period of 1949 (Preliminary Figures) Compared with Same Period in 1948

Commodity	No. of countries included	Calendar year				Partial year [a]	
		1938	1946	1947	1948	1948	1949
		(..... Metric tons .....)				(....Metric tons .....)	
Fish, fresh or frozen	6	320 291	419 278	417 831	513 682	471 529 [b]	475 196 [b]
Fish, salted, dried or smoked	6	173 848	164 217	116 120	159 046	91 296 [b]	69 943 [b]
Fish, canned [c]	5	100 585	102 384	96 050	48 778	38 964	36 897
Crustaceans and molluscs [c]	5	33 306	27 151	29 698	38 504	6 551	10 276
Fish oils [d]	4	137 245	30 947	46 719	50 518	36 847	22 300
Fish meal and fertilizer	2	26 801	7 122	6 657	17 231	13 130	12 122
Aquatic mammal oils and fats [d]	3	264 335	72 945	158 378	135 186	134 582	134 283
Miscellaneous aquatic plant and animal products	3	1 494	1 284	2 539	1 946	1 194	1 802
Total		1 057 905	825 328	873 992	964 891	794 093	762 819

a/ Data in these columns represent latest available information for 1949, the first 6 to 9 months, compared with a corresponding period of 1948.
b/ "Fish, fresh or frozen" may include some salted, dried, or smoked fish.
c/ "Fish, canned" includes some crustaceans and molluscs.
d/ "Fish oils" includes some aquatic mammal oils and fats.

Prices

There is a noticeable recession in international trade in fisheries products and marked signs of declining prices. During the early part of 1949 fish prices in the United States of America declined more rapidly than would be explained by the normal seasonal downward trends, but by September 1949 the index figure for frozen

fish retail prices was only one percent below September 1948. Prices for canned pink salmon in September 1949 were 27.4 percent lower than in September 1948. In Canada the wholesale index figure for fisheries products was 249.8 in September 1949 (1935-39 = 100) compared with 258.1 in September 1948. Both in the United States and Canada, fish oil prices declined drastically. New York quotations indicate a drop from 15 U.S. cents per pound for crude sardine oil in the last part of 1948 to as low as 6 cents in 1949. Prices for other fish oil declined substantially, but not as severely.

Little information on fish prices in Europe is available since a large proportion of fish is sold under trade agreements. Quotations from Gothenburg, Sweden, show a downward trend. It appears from various reports that the greater availability of other food has somewhat eased the situation and obviated price control for fisheries products. Decontrol of fish trade has been announced in the United Kingdom, and ceiling prices in the Netherlands and Germany were lifted in 1949. Although indicators of the trends in fish prices are conflicting, prices have generally declined for cheaper qualities of fish and remained high for more expensive products, reflecting the consumers' ability to exercise greater discrimination in the kind of fish they purchase.

The plans reported from many countries for expanding the catching capacity of the fishing fleets are likely to result in larger landings with consequent effects on prices. The expansion of fisheries by large consuming European countries is creating marketing problems for traditional exporters, many of whom are now directing their attention to other regions. Perhaps the severest competition will be felt in the United States market where several exporting countries reckon on earning much-needed dollars. The recent devaluation of currencies provided an incentive for European countries to export to North American markets, but it also increased operating expenses through higher prices for fuel oil and other items quoted in dollars.

Ultimate Results to Producers

Should fish prices drop to any considerable extent, difficult situations may develop for those countries which have rehabilitated their fishing fleets during the recent years of inflated prices. Some evidence is already available regarding the painful process of adjusting the fishing industry to more "normal" conditions. By mid-October, approximately 30 percent of the tuna clipper fleet of the United States of America was idle. By mid-December some Faroese trawlers were reported to be idle, others to have been sold. Some United Kingdom trawlers have been laid up due to unprofitable operations in the North Sea; other countries reported similar difficulties. As far as the North Sea is concerned, the lack of profitable fishing is ascribed to overexploitation of available stocks. In Norway, fishermen fear overcrowding of coastal herring fishing fields.

Developments

FIFTH SESSION OF THE FAO CONFERENCE

Afghanistan, Indonesia, Israel, Korea, and Sweden were admitted to membership in the Food and Agriculture Organization at its Fifth Session which was held in Washington from 21 November to 6 December 1949. This brings the total number of member countries to 63. Among the important decisions made by the Conference was that of moving the permanent headquarters of the Organization to Rome, Italy. The move will probably take place in 1951.

The International Commodity Clearing House, proposed by the Director-General was not adopted. This proposal came as the result of the deliberations of a special committee of economists during the summer of 1949 and was designed to overcome the problems of surplus in hard currency areas and deficits in areas which lack convertible currency with which to meet their needs. The Conference, however, established a Committee of fourteen members of FAO to:

(a) consider such statements as to their needs as may be received from the governments of countries experiencing difficulties in securing supplies and to transmit such statements to governments of countries holding surpluses;

(b) consider such statements as may be submitted by the governments of countries holding surpluses concerning their proposals for disposing of supplies on special terms and to make recommendations thereon to the governments concerned, having regard to the effects of such transactions on the interests of other importing and exporting countries;

(c) review information relating to such commodity surplus situations and, where considered desirable, to initiate discussion between governments with a view to promoting appropriate international action.

The Conference considered the expanded program for Technical Assistance for Economic Development, which was prepared by the United Nations and Specialized Agencies, 1/ and authorized the Director-General to participate to the greatest possible extent in this program. It was generally agreed that this program would contribute greatly to the establishment of improved conditions for peoples, especially of the underdeveloped areas, and do much towards bringing about desired equilibrium.

The organization of the Conference followed the pattern used heretofore of resolving itself into three Commissions, the first dealing with the State of Food and Agriculture and the proposal for the International Commodity Clearing House; the second with the Report of the Director-General on the Work of FAO, the Proposed Program of

1/ Technical Assistance for Economic Development, United Nations, Lake Success, New York, May 1949.

Work for 1950, and the FAO Program for Technical Assistance for Economic Development; and the third with financial matters, the permanent site of FAO headquarters, and other administrative and constitutional matters.

A departure from former procedure was seen in the division of Commission II into eight panels, one for each of the Technical Divisions, so that specialists on the various delegations interested in a particular phase of technical work could more intimately examine the reports and the proposals of each of these Divisions. This device has has been the practice of the Fisheries Division since the inception of FAO, and its general incorporation into the procedure of the Conference greatly facilitated the work of the Conference.

The Fisheries Panel of Commission II appointed Mr. A. W. Anderson, United States of America, Chairman, and Dr. M. K. El Saby, Egypt, Vice-Chairman. Mr. Anderson was also the Rapporteur of the Fisheries Panel to Commission II.

Fisheries Program for 1950

The Panel held six meetings during which it reviewed the progress of the work of the Division in 1949, and considered the following program for 1950:

I. Collection, Analysis, and Dissemination of Information

(a) Fisheries Bulletin

The Bulletin contains analyses of fisheries developments permitting an evaluation of the current fisheries situations. In an effort to reduce reproduction and translation difficulties and to assure regular publication in the three languages, the Bulletin was issued bimonthly in 1949. It is suggested that in 1950 this practice be continued. Material for use in the Bulletin is compiled from periodic and special reports of member governments to FAO, answers to questionnaires, correspondence with fisheries technicians and leading fisheries trade journals. Material developed by FAO in its structural survey of fisheries on price trends and costs of operation will be carried from time to time in the Bulletin. (See project I (f) "Survey of Fisheries Resources.")

(b) Fish Cultural Methods

This project involves the assembly of available information on all branches of fish culture. This will be supplemented by consulting and survey services by the Division, aided where necessary by outside experts. Eventually it is planned to initiate fish cultural projects in regions where this type of activity will be of most benefit: e.g., the Near East.

(c) Fishing Methods and Gear

Available information about fishing methods and gear in use in various parts of the world will be assembled and analyzed. Following this survey, there will be established a consulting service on the most recent and best methods of catching fish. The Division frequently receives inquiries regarding questions of this nature and finds that description of gear and fishing methods in use in various parts of the world will help greatly those countries developing and expanding the utilization of their fisheries resources.

(d) Commodity Studies

By 1950, studies will be completed on Salted Fish (cod and allied species) 2/ Herring and Allied Species, and Tuna. In view of the expansion of trade in fresh and frozen fishery products and the desire for more and more countries to participate in this branch of the industry, it is planned to conduct a study on these product forms in 1950. Emphasis will be placed on underdeveloped countries with a view to assisting them in developing production and marketing.

(e) Cataloguing of Technological and Biological Research Institutions and Scientists

This project, already under way, involves the compilation of lists of fisheries educational and research institutions, together with their personnel and descriptions of functions. This catalogue is designed to facilitate exchange of information and publications between such institutions and will serve to further co-operation between them. It will also be of value for students of fisheries, especially when travelling abroad. It is intended for publication and dissemination to member governments and institutions.

(f) Survey of Fisheries Resources

This study will serve as a blueprint of fisheries activities the world over, and will point up those areas being overexploited as well as underexploited. Information is compiled at Headquarters from published sources and from interviews with people who have knowledge of and experience in the area under consideration. This work was initiated late in 1948, and compilation of available material on Latin America is now completed. As the subject is a dynamic one, it may be considered a continuing project. It is estimated that the basic compilation will take about two years, but after this the project will become more or less routine and will be less time-consuming.

As part of this project, a structural survey will be made of the fisheries of Latin America and Asia and the Far East. Comparison of the fisheries of various countries in a region and of the fisheries of one region with those of another will assist in finding a sound basis for economic development programs in the regions. This study will include an examination of the efficiency of production by various fishing methods. It will also include research on the trend in prices for fisheries products, the prices of certain capital goods, and the relationship between the cost elements.

The work will be carried out in close co-operation with the Indo-Pacific Fisheries Council in the Far East, and, in the case of Latin America, the results of the work will be used as a guide in the formulation of programs of work for Regional Fisheries Councils to be established in the area.

(g) Statistical Services Including Yearbook of Fisheries Statistics

The first edition of the Yearbook of Fisheries Statistics was published in 1948. It was planned to issue subsequent editions yearly, but budgetary limitations restrict

2/ English edition of Salted Cod and Related Species was published in 1949, French and Spanish editions are in press.

publication to a biannual basis. The manuscript for the 1950 Yearbook will be completed by the middle of 1950. According to present plans, the Yearbook will amount to some 150 pages, and, in addition to production statistics, will emphasize the dynamics of trade. Parallel to this operation, governments will be encouraged and assisted to improve their statistical systems and the quality of statistics.

(h) Standardization of Common and Scientific Names of Commercially Important Fishes

This work, being initiated in 1949, is a prerequisite to the compilation of accurate statistics. The nomenclature of fishes is extremely confused, and the Division is undertaking the job of compiling the names presently in use with a view to effecting harmonization of nomenclature not only as between countries but within individual countries. While this is more or less a continuing project, the basic compilation work is expected to be completed by the end of 1950.

(i) Commodity Standards

This project, already under way, involves the collection and correlation of information on commodity standards of fisheries products entering into international trade. This information will in turn be made available to governments to enable them to take any joint action necessary to facilitate the freer movement of trade in fisheries products.

II. Promotion of International Consultation

(a) Preparatory Work Leading to the Establishment of Regional Fisheries Councils

Some of the preparatory work leading to the establishment of Fisheries Councils in the Near East and Latin America will be accomplished in 1949. This work involves not only considerable travel in the areas for consultation with fisheries administrators and scientists, but also an examination and assessment at Headquarters of fisheries conditions in the area to enable the interested governments to determine the form of Council and nature of its operation best suited to cope with these conditions. This work will be complete in 1950 for the two areas mentioned. Meetings will be held in each of the areas to consider the establishment of such Councils.

(b) Servicing of Regional Fisheries Councils

One Council, the Indo-Pacific Fisheries Council, is already in operation, its secretariat being supplied by FAO. It is expected that at least two other Councils - for the Near East and Latin America - will be established in 1950. As in the case of the Indo-Pacific Fisheries Council, the Secretaries will be the Regional Fisheries Officers in the area.

It is planned that much of FAO's work on fisheries in the regions will be accomplished through the medium of those Councils, but the Regional Fisheries Officers will be required to undertake duties over and above those devolving on them as Secretaries of the Councils. These will include keeping the FAO Regional Representative and Headquarters informed of fisheries developments in the area and giving advice to fisheries administrators and technicians on request. The operation of these Councils will require certain administrative and co-ordinating activities at Headquarters.

III. Direct Technical Aid

(a) Consulting Services

Work on several of the projects carried out at Headquarters, particularly I(b) Fish Cultural Methods, I (c) Fishing Methods and Gear, and I (f) Survey of Fisheries Resources, will enable the Division more promptly and efficiently to give technical aid to member governments.

In the development of the fisheries programs emphasis is being placed on the regional approach. The Regional Fisheries Councils, one of which has already been established for the Indo-Pacific area, are designed to promote on a regional basis the development and exchange of technical information. FAO fisheries technicians attached to Regional Offices, and who will act as Secretaries of the Councils, will be available on the spot to give technical advice on matters within their competence and to recommend outside assistance where necessary. While Regional Councils provide a means of exchange of technical information within a region, Headquarters acts as a clearing-house for the exchange of material between regions.

(b) Technical Meetings

In addition to the meetings concerned with the projects listed in this program provision is made for occasional meetings of fisheries technicians and administrators in specific regions to deal with specific problems as they arise. These meetings will be under the supervision of the Regional Fisheries Officers. It is felt that such meetings will be particularly useful in those areas where Regional Fisheries Councils are not yet in existence.

(c) Technological Abstracts

There is the world over a great need for the wider dissemination of the quite extensive information regarding technical aspects of fishing and fish processing found in various laboratory reports, periodicals, etc. Several countries have considered an abstracting and summarizing service sufficiently desirable to establish their own. Such services are generally not available in countries with less developed fisheries, although the need is greatest there. Much time and effort will be saved by the centralizing of such activities. This project involves the abstracting, publication and distribution in English, French, and Spanish of pertinent information dealing with fisheries technology and engineering.

Report of Fisheries Panel to Commission II

Careful consideration was given to this program in the light of the needs and the limited resources of FAO. The following is an extract from the Report made to Commission II:

"The Panel has reviewed and generally approves the work of the Organization in the field of fisheries during 1948/49, and its fisheries program for 1950 and 1951, finding them to be in conformity with decisions made at previous sessions of the Conference. It commends the work of the Fisheries Division in striving towards the objectives of FAO in the field of fisheries. The program is considered to strike a reasonable balance between the needs of the developed and underdeveloped countries of the world.

It notes with satisfaction the approach and treatment given to the fisheries projects outlined in the proposed Technical Assistance Program.

"The work of an international agency in the field of fisheries is made significant by the needs of the world for the types of products which are yielded by the large and only partially developed fisheries resources of the globe. At the same time, marketing problems are emerging for some countries which are already relatively well developed in this industry. Also, conservation problems are arising with respect to certain fisheries and in certain areas. In this connection it is recognized that conservation is an essential element to sustained maximum production. These different problems reflect themselves in the endeavors of the Division and require a thoroughly considered and well-rounded approach to the various phases of the work which has been undertaken or is being planned.

I. The Collection, Analysis, and Dissemination of Information

"In general, the development of fisheries information services, and particularly the plans for future improvement, were approved, though the following additional comments were made. With respect to the assembling of information about fishing methods and gear as the basis of a consulting service, it is recommended that FAO encourage the countries themselves to aid the program through exchanges of information. The Panel also draws attention to the fact that commodity studies are a useful approach to a better understanding of the flow of international trade in fisheries products. With respect to statistical services, the Panel considers that it is desirable for governments to give some measure of the degree of accuracy of their fisheries statistics.

II. - Promotion of International Consultation

"The Panel notes with satisfaction the progress made in establishing Regional Fisheries Councils. The Panel feels, however, that the Organization, in continuing consultation with governments to carry out the mandate of former sessions, should give full consideration to work being carried on by international fisheries commissions or similar bodies already functioning in international waters. Finally, care should be taken in the formation of further Regional Fisheries Councils, that there is sufficient technical fisheries personnel available in the potential member countries to ensure the Councils' success.

III. Plans and Programs of Member Governments

"The Panel considers that FAO documents such as Food and Agricultural Targets and Outlook for 1950/51 (C49/23) should devote more attention to the role of fisheries products in the general food supply situation.

IV. Emphasis in Development Programs

"The Panel draws attention to the need for emphasizing the guidance of underdeveloped countries in the development of local fisheries for improved nutrition of local populations rather than for export."

With respect to the role to be played by the Fisheries Division in Technical Assistance for Economic Development, the Panel had before it the proposals of the

Director-General prepared for the United Nations. 3/ The Panel considered that the implementation of Technical Assistance would make a valuable contribution to the development of the world's fisheries resources, stressed the limiting condition to accomplishment as being the lack of trained personnel in the countries to which technical assis ce is to be given. It was thought to be unwise to send highly trained fisheries workers to other countries unless they in turn have skilled personnel capable of appreciating and making use of the advice offered.

The Panel therefore agreed with the emphasis that was placed upon training schemes and educational activities outlined in the program by the Director-General and wished to stress its importance still further.

The Report of the Fisheries Panel was accepted by Commission II without modification and the Commission's report by a plenary session of the Conference.

General Fisheries Council for the Mediterranean

Commission III, whose task was to deal with constitutional matters, examined and approved an Agreement which was formulated in Rome, Italy, on 24 September 1949, for the establishment of a General Fisheries Council for the Mediterranean. This meeting was held at the invitation of the Director-General and was attended by delegates from France, Greece, Italy, Lebanon, Turkey, the United Kingdom, and Yugoslavia. The United States of America, Spain, the International Council for the Exploration of the Sea, and the Holy See were represented by observers. The task before this meeting was to consider and determine the constitution of the proposed Council and the area to be covered by its work. Under the Chairmanship of Ambassador Sola, leader of the Delegation from Italy, and the Vice-Chairmanship of Professor Jean LeGall, leader of the Delegation from France, the meeting unanimously adopted a resolution commending the terms of the Agreement to their respective governments.

The Conference approved the Report of Commission III with respect to the Agreement for the establishment of the General Fisheries Council for the Mediterranean, and the Agreement will now be forwarded to interested governments, members of FAO, for their acceptance. The Council will come into being when at least five members of FAO have accepted. Following this, the inaugural meeting will be called.

PACIFIC OCEAN FISHERIES INVESTIGATIONS

The Congress of the United States approved a Bill on 4 August 1947, known as the Farrington Bill, which provided for the "exploration, investigation, development and maintenance of the fishing resources, and development of the high seas fishing industry of the Territories and island possessions of the United States in the tropical and subtropical Pacific Ocean and intervening seas ..." The Act is administered by the Department of the Interior through its Fish and Wildlife Service. Initially, an appropriation of a million dollars was provided to get the work under way.

3/ Technical Assistance for Economic Development, United Nations, Lake Success, New York, May 1949.

Under the Act, a separate research organization known as Pacific Oceanic Fishery Investigations (POFI) has been set up. This organization is divided into three Sections or research departments. The Biology and Oceanography Section deals with the scientific study of the fishes themselves and the related hydrographic problems; the Exploratory Fishing Section is concerned principally with finding where fish occur and how to catch them; and the Technology Section deals with problems of caring for fish after they are caught. The Director of Investigations, the heads of the three sections, and a number of the supporting staff have been appointed and have been active for over a year in setting up a program of work, preparing laboratory facilities, and getting their seagoing research vessels into operation. Much work has already been accomplished in assembling known information on the tunas and pelagic fish in general, and many important works in this field have been translated from the Japanese.

The POFI will operate three vessels; two will be used initially for exploratory fishing and one for biological and hydrographic research. A headquarters building and laboratory are being built in Honolulu.

DEVELOPMENT OF THE FISHERIES OF CEYLON

The Ceylon Government has adopted a fisheries policy which is aimed towards a better and greater utilization of its fisheries resources. Surveys of the fishing industry in recent years have indicated the possibility of considerable development provided adequate technology, educational effort, and organizational adjustments are supplied. The assistance of FAO has been requested and given to the government in tackling this problem, and it is expected that the continuation and development of the policy adopted by the government will make substantial contributions to the food and well-being of its people.

The bulk of the fishing industry of Ceylon is concerned with operations on ocean beaches and with the operation of small craft in a narrow zone of coastal waters. While the greater part of these operations relate to the capture of fish proper, there are special sections concerned with prawns, conch shells, and oysters; there is also an intermittent fishery for pearls. The fresh-water fishery is quite undeveloped, and deep-sea operations consist of only governmental projects.

The most important sea fisheries are in the onshore waters. Hauling seines are used and are operated chiefly from the beach. These nets are of typical design but are of considerable size and require large teams of men, at times are many as 80, for their operation. The hauling lines and wings of these nets are of great length; the netting of the wings is of large mesh, but the netting of the bag is of extremely fine mesh. The manner of operation is the usual one, but much of the fishing is done merely on speculation, that is, the net is shot in the absence of sight of fish, not only when schools of fish are sighted traveling along the coast. This procedure is dictated largely by the fact that the right to fish is granted in the form of a kind of lease of a section of the coast. The equipment is operated by wage-earning fishermen employed by the owner of the outfit and lessee of the fishing right. The equipment is often quite varied, and one outfit may include several nets, varying in size and mesh to suit various species of fish. These nets are operated on the east coast from April to November and along the

northwest coast from October to April. About 70 percent of the total Ceylonese production is obtained from this gear.

The onshore operations involve the use also of hand lines, trolling lines, long lines, meshing nets, and dragging seines. The boats are catamarans, outrigger canoes (dugout and carvel-built), and others called padavus and parus. The onshore fishery engages the services of approximately 40,000 men and contributes about 90 percent of the Ceylonese local supply.

The fishing industry of marine offshore waters consists of three sections: firstly, trolling operations, for sailfish, tuna, spearfish and Spanish mackerel, chiefly off the southwest and south coast, using orus (outrigger canoes); secondly, hand-lining for reef stocks from the reefs lying offshore towards the edge of the continental shelf, using orus and teppams; thirdly the governmentally conducted trawling and experimental Danish seine operations on the Wadge and Pedro Banks. It is noteworthy that, in addition to these three chief types, there is some jigging for tuna supplementing the trolling operations and some use of special "grab-all" gear for tuna and other mid-water fish supplementing the hand-lining operations. In this section of the industry, ownership is somewhat complicated; the fisherman always owns the gear which he uses but frequently is not the owner of the boat. The trawlers in 1947 landed 764 metric tons.

The coastal lagoons and tidal streams are exploited by a fairly considerable fishery for prawns and brackish-water fish, engaging the full-time attention of a few thousand men: the gear used includes stake nets, traps, cast nets, and brushwood and other types of lures. This section of the industry is owner-operated, that is, the gear is operated by the persons who own it.

The minor fisheries for pearls, oysters, and conch are of no present significance. There has been no substantial or continuous pearl fishery since 1925, and no real oyster fishery since 1937. Although there is a market in India for the conch, the fishery is of no great importance.

The fisheries of Ceylon provide direct employment for probably 45,000 men using about 12,000 to 15,000 boats of various dimensions. It is impossible to indicate the capitalization which is involved in these operations, but a very large proportion of the fishing personnel proper is engaged only in the capacity of wage earner and such owner operators as are to be found have only small, inexpensive gear. The financing of the operations is somewhat complicated, and the wage-earning fishermen have to obtain an advance from their employer at the beginning of the fishing season. In effect the industry is primitively organized, with a minimum of mechanization of the equipment and low levels of proficiency among the operatives.

The total production from these fisheries is estimated at something of the order of 35,000 to 40,000 metric tons per year, and most of this is consumed as fresh fish. This supply is supplemented by importations amounting to 20,000 to 25,000 tons of processed fish per year; the bulk of the importations is dried fish, about 75 percent to 80 percent drawn mainly from India. About 4,000 tons of Maldive fish are imported annually from the Maldive Islands. Since the imported fish represents landed wet weight of at least 40,000 to 50,000 tons, it will be seen that the Ceylonese fishing industry would probably have a large home market on which it could place any increase of production and that, therefore, there is no restraint, in this sense, on the development of the industry.

THE PHILIPPINE FISHERY PROGRAM

Under the general Philippine Rehabilitation Program undertaken co-operatively by the governments of the United States of America and the Republic of the Philippines the only project that is concerned with food supply and food production is the plan to rehabilitate and develop Philippine fisheries.

Prior to World War II, the commercial fisheries of the Philippines provided sufficient fish to supply the domestic needs, which are very high. The per caput consumption of fish has been calculated to be about 100 pounds per annum which is as high as any place in the world. The postwar production supplied only about 60 percent of requirements, so that the fisheries rehabilitation program has been granted a high priority.

The project has been designed to promote - through research, experimentation, and demonstration - fundamental scientific and economic information upon which the Philippine fishing industry may be restored, modernized, and expanded. The program is concerned with fundamental studies in oceanography and the biology of the important food fishes, with estimates of their abundance and distribution, with exploratory fishing operations to determine the commercial practicability of fishing for the various species and for the exploration of new fishing grounds, and with studying the handling, processing, storing, and distribution of fishery products.

The program also authorizes the selection of a number of Filipinos for training in the United States for one year in various phases of fishery science and industry. A number of trainees have already completed their courses and are now back in their own country.

Excellent physical facilities for carrying out the work of the program have been provided. A large, two-story building in Manila houses the administrative offices and the biological, oceanographic, and technological laboratories. There is a separate experimental fish processing plant.

Three modern, well-equipped research and exploratory fishing vessels operate out of Manilla. The largest of these vessels, the "Spencer F. Baird," is 143 feet long and is especially equipped for biological and hydrographic research. In addition to a biological and a chemical laboratory, this vessel has a sharp-freeze compartment and bait tanks for experimenting with and carrying bait; it also carries experimental fishing gear. The second vessel, the "Theodore N. Gill," is 90 feet long and is designed for purse seining and trawling. The third vessel, the "David S. Jordan," is a 54-foot, versatile, all-purpose fishing vessel, designed to carry on fishing of all types.

The general program of rehabilitation was organized by agreement of the two countries concerned in March 1947. By mid-1948, the fishery program employed 111 technical and nontechnical personnel, 51 of whom were recruited in the United States. Under present agreement, the project will continue until 30 June 1950.

Fisheries Division Activities

● The FAO Regional Fisheries Officer for Asia and the Far East, Dr. G. L. Kesteven, attended the Technical Meeting on Co-operatives held in Lucknow in October 1949 and presented a paper on "The Organization of the Fishing Industry in the Indo-Pacific Region."

Following the meeting, he visited Bombay, Mandapam, Ceylon, and Singapore. In Ceylon he had consultations with government officials on their plans for an expanded program of fisheries development.

● The FAO Regional Fisheries Officer for Latin America, Dr. B. F. Osorio Tafall, attended the first Latin American Congress on Marine Biology which was held in Vina del Mar, Chile, 10 - 11 October 1949. The meeting, which was convened by the University of Chile and attended by representatives from Argentina, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Panama, Peru, and Uruguay, proposed the establishment of a "Permanent Latin American Committee for Oceanography, Marine Biology and Fisheries." The agreement is subject to the approval of the governments concerned.

Following the meeting, the Regional Officer had consultations with fisheries officials at Santiago, Chile; Lima, Peru; and Quito, Ecuador.

● The Chief of the Technological Branch, Mr. Mogens Jul, is visiting several European countries in January 1950 to discuss with fisheries officials the possibilities for and interest in a meeting on technical problems of the herring industry, particularly aimed at finding new outlets for the herring production. Such a meeting was recommended by the FAO-sponsored meeting on herring problems held in The Hague in the fall of 1949.

● Mr. G. V. Howard of the Headquarters Biological Branch, presented a paper on Marine Fisheries of the Caribbean at the second annual meeting of the Gulf and Caribbean Fisheries Institute, held at Miami Beach, Florida, U.S.A., 15 - 18 November 1949.

The theme of the meeting was the wise and fullest possible use of the fisheries resources of the Gulf of Mexico and the Caribbean Sea. The meeting was attended by almost one hundred delegates -- representatives of government agencies of the Caribbean countries, state and federal officials of the United States, and representatives from private research institutes, fishermen's organizations, and the commercial fishing industry. It is expected that the proceedings will be published early in 1950.

● The Indo-Pacific Fisheries Council will hold its second annual meeting in Australia beginning 17 April 1950. The meeting will take place at the Marine Biological Laboratory, Cronulla (near Sydney), N.S.W. The Laboratory is part of the Australian

Commonwealth Scientific and Industrial Organization's establishment for the investigation of fisheries.

As of December 1949, the Indo-Pacific Fisheries Council had a membership of twelve governments -- Australia, Burma, Ceylon, China, France, India, Netherlands, Pakistan, Philippine Republic, Thailand, United Kingdom, and United States of America.

FAO supplies the secretariat, and the Regional Fisheries Officer in the area is Secretary of the Council.

The Executive Committee of the Indo-Pacific Fisheries Council, consisting of the Council Chairman, Dr. Baini Prashad of India, the Vice-Chairman, Dr. J. D. F. Hardenberg of the Netherlands, and the Secretary, Dr. G. L. Kesteven, met in Bangkok in December 1949 to discuss amongst other things arrangements for the Council meeting.

● Two interim committees of the proposed General Fisheries Council for the Mediterranean were established at the Rome Fisheries Meeting to engage in preparatory work pending the formal establishment of the Council. The members of these committees are to be nominated by governments.

The committees, one of which is to deal with oceanographical subjects and the other with fisheries technology, will prepare a program of work for submission to the Council at its inaugural meeting. FAO, through its regional office in Rome, has been in communication with those governments whose delegates participated in drawing up the agreement for the establishment of the Mediterranean Council, requesting their nominations to the committees.

At the time of writing, replies have been received from France, Italy, and Greece. Their nominations are:

France: Jean Le Gall (oceanography and technology).

Italy: Gustavo Brunelli, Carlo Maldura e Dott, Gabriella Cannici Giacometti, Giulio Bonamico, and Michele Trova (technology); Roberto Almagia, Gustavo Brunelli, Francesco Vercelli, and Carlo Madura (oceanography).

Greece: Christos Serbetis (technology), Nicolas Speranzas (oceanography).

Notes on Publications

Canadian Fishery Markets. Review and Outlook. Market Bulletin No. 2. Department of Fisheries, Ottawa, Canada, January 1949. 34 pp. In English.

This is the second of a series of bulletins reviewing the marketing situation and outlook for Canadian fisheries products. It summarizes the 1949 marketing outlook, discusses general trends in the marketing of Canadian fisheries products together with an analysis of the outlook by markets and by types of fisheries products.

Canadian Fishery Markets. Review and Outlook. Market Bulletin No. 3. Department of Fisheries, Economics and Statistics Branch, Ottawa, Canada, September 1949. 32 pp. In English.

This review of the production and marketing of Canadian fisheries products summarizes the marketing outlook of 1949-50. It discusses Canadian as well as foreign fisheries production, the world food situation, domestic consumption in Canada, export marketing, and the outlook by markets (domestic, United States, and other foreign markets) as well as the market outlook by type of fisheries product.

Fishery Products at Annecy. Tariff Bulletin No. 3. Department of Fisheries, Ottawa, Canada, October 1949. 12 pp. In English.

This bulletin is a review of the 1949 tariff negotiations at Annecy, France, indicating their relationship to the Canadian fishing industry. It summarizes the tariff concessions made by the various countries where such actions are of importance to the Canadian fishing industry. It also contains a detailed discussion of the various tariff concessions granted by both acceding countries and present contracting parties as well as a discussion of the modifications in preferential margins and the concessions granted by Canada.

Agricultural Products and Provisions. Summaries of Tariff Information, Vol. 7, Part 2, Fishery Products, Paragraphs 717-21. United States Tariff Commission, Washington, D.C., U.S.A., 1948. 155 pp. In English.

These brief summaries of tariff information discuss United States production, imports, and exports of each tariff item concerned with fisheries products (edible). They also discuss competitive conditions and give general comments on the role of each commodity in the fisheries concerned with its production. The statistical tables indicate the quantities and values of imports together with production statistics, ratio of imports to consumption, changes in the United States rates of duty, etc.

Growth of South African Fisheries. Fishery Leaflet 347. United States Department of the Interior, Fish and Wildlife Service, Washington D.C., U.S.A., June 1949. 10 pp. In English.

The leaflet surveys the regrouping of various fishing interests such as companies and company groups, large and small independents, etc., functioning in the fisheries industries of South Africa. It provides a short discussion of the growth of the South African and the Southwest African industries.

Whaling and Whale Oil During and After World War II. Karl Brandt. War-Peace Pamphlets No. 11. Food Research Institute, Stanford University, Stanford, California, U.S.A., January 1948. 48 pp. In English.

This pamphlet is a supplement to an earlier publication by the same author entitled "Whale Oil, an Economic Analysis," Fats and Oil Studies, No. 7, Food Research Institute, Stanford University, California, June 1940. The pamphlet deals with the impact of World War II on the whaling industry, postwar reconstruction of the fleets, international regulation of whaling, and the 1945-46 and 1946-47 seasons and the outlook for whaling and whale oil.

The Fish Trade of the Caribbean. External Trade Bulletin No. 3. Caribbean Commission, Central Secretariat. Washington, D.C., U.S.A., 1948. 259 pp. In English.

After a short introduction summarizing the general findings, a large number of detailed tables on the import and export trade in fresh, dried or salted, smoked, pickled, canned and preserved fish of the countries (non-self-governing territories) of the Caribbean are given. The tables indicate both the quantity and value of the trade in the various fisheries commodities.

Problems of the Fishing Industry. Hearings before the Subcommittee on the Fisheries and Wildlife Conservation of the Committee on Merchant Marine and Fisheries, House of Representatives, Eighty-First Congress, First Session. U.S. Government Printing Office, Washington, D.C., U.S.A., 1949. 226 pp. In English.

Contains statements by the officials of various private firms and associations concerned with the fisheries of the United States and answers to questions by witnesses that appeared before the Subcommittee on 15 and 16 February 1949.

Extension of Reciprocal Trade Agreements Act. Hearings before the Committee on Finance, United States Senate, Eighty-First Congress, First Session on H.R. 1211, pp. 707-794. U.S. Government Printing Office, Washington, D.C., U.S.A., 1949. In English.

Contains statements of representatives of various fisheries interests and associated agencies regarding the imports of fish into the United States of America and the implications of such imports on the domestic fisheries industries.

Taschenbuch für Kältetechniker. Walther Pohlmann. 12th Edition. Hans A. Keune-Verlag, Hamburg, Germany, 1947. 466 pp., illus. In German.

This handbook is designed for refrigerating engineers; the metric system is used throughout. The first chapters contain tables giving specific heat, freezing points, etc., for various foods, measures for herring barrels, fish boxes, etc. It has a chapter on dynamics and a detailed description of refrigeration machinery, a chapter on ice and ice manufacture with sketches of the various ice manufacturing machines and installations both for block ice and the various American and European apparatuses for manufacturing flake ice, etc.

A chapter on room refrigeration gives suggested storage temperatures for various food and fish products. /The temperatures suggested for fresh fish, smoked fish, glazed salmon, and fresh mussels seem somewhat unusual. Reviewer./ This chapter also gives details for installation of room refrigeration equipment.

One chapter describes the various building and installation materials and construction methods in use for cold storage buildings. Another chapter gives information on management, etc., of cold storage warehouses and cold storage rooms and rules and regulations for such. A chapter is devoted to room refrigeration by use of ice.

Anordnungen und Anweisungen der Früheren Hauptvereinigung der Deutschen Fischwirtschaft. Fischwirtschaftskunde, Vol. XVIII, I. Part. Hans A. Keune-Verlag, Hamburg I, Germany, 1947, 212 pp. In German.

Part I of Volume XVIII of the Handbook of the fishing industry represents a chronological collection of the laws, regulations, instructions, etc., covering the whole fishing industry and trade, which were issued in Germany from the beginning of 1936 to March 1945. These include import and export regulations; lists and definitions of all marketable fishery products; quality control regulations for canned fish products and salt herring; regulations concerning preparation and composition of fish pastes, fish sausages, fish salads, roes; fishmeal production requirements; standardization of containers for canned fish; minimum requirements for fish retail stores; wartime price regulations, etc.

Synthetic Food Adjuncts. M.B. Jacobs. Van Nostrand Co., Inc., New York, N.Y., U.S.A., 1947. 335 pp. In English.

Deals mainly with synthetic flavoring materials, but has also a chapter on synthetic coloring matters and their use as food colors, including reference to their separation and analysis and formulas for mixing colors, a chapter on chemical preservatives and stabilizers and one on vitamins. Preservatives are defined, classified, and their criteria listed. Among the bacteriostatic, fungistatic, or germicidal agents, the benzoates, propionates, and quarternary ammonium compounds and organic acids are discussed. The nature of antioxidants, the mechanism of their action, and their use for the treatment of oils are also dealt with. The use of substances of marine origin (agar-agar, Irish moss, sodium alginate) as emulsifiers of flavoring substances are mentioned. Synthetic stabilizers and synthetic organic substances for use as coatings in wrappings are also described. Synthetic vitamins and the use of vitamins in the enrichment of foods are covered in the final chapter.

Proceedings of the Gulf and Caribbean Fisheries Institute. Inaugural Session, Miami Beach, August 1948. University of Miami Marine Laboratory, Coral Gabl Florida, U.S.A., July 1949. 71 pp. In English.

The Gulf and Caribbean Fisheries Institute established in 1948 seeks to bring together all groups interested in and associated with the fisheries of the Gulf of Mexico and the Caribbean Sea in order to exchange information and discuss their problems. The published proceedings present 18 of a total of 27 technical and nontechnical papers delivered at the inaugural meeting. These papers cover many diverse topics associated with fisheries research, conservation, law enforcement, potential development, and economic aspects. Many of the Caribbean countries and most of the Gulf States of the United States of America are specifically referred to in the reports. Emphasis is focused on problems of the shrimp industry, crawfish research, effects of the red tide organism (Gymnodinium brevis), potentialities of a sardine industry, the depleted sponge resources, wider utilization of the seaweed resources, and the economics of marketing.

Bibliography of Canadian Biological Publications for 1946. J. Murray Speirs. Biological Bulletin No. 3. Province of Ontario, Department of Lands and Forests, Division of Research, Toronto, Canada. 91 pp. In English.

This bibliography lists the biological literature written by Canadians, or dealing with Canadian wildlife, published during 1946. Medical and commercial aspects are omitted unless the biological content predominates. It is arranged alphabetically by general subject headings, under which works are listed alphabetically by author. There are approximately two hundred papers dealing with fisheries. Any papers omitted from this publication will be included in the list which is to be published for 1947.

Definitions of Body Dimensions Used in Describing Tunas. J.C. Marr and M.B. Schaefer. United States Department of the Interior, Fish and Wildlife Service, Fishery Bulletin No. 47, Vol. 51 (1949), pp. 241-244. Government Printing Office, Washington, D.C., U.S.A., In English.

The authors point out that for a species of fish which is commercially utilized, it is important to know whether the population consists of subpopulations. They add that this is particularly true for migratory pelagic species such as the tunas, which have a wide distribution, for it is necessary to know whether exploitation at one point in their range affects the stock at others. The classical method of distinguishing subpopulations is by comparing series of meristic counts and morphometric characteristics of samples from different localities. The present paper describes the methods used and defines the body dimensions being taken for the tunas by the Pacific Oceanic Fisheries Investigations, in order to facilitate the use of their data by other workers.

Catastrophic Mass Mortality of Marine Animals and Coincident Phytoplankton Bloom on the West Coast of Florida, November 1946 to August 1947. Gordon Gunter, R.H. Williams, C.C. Davis, and F.G.W. Smith. Ecological Monographs, Vol. 18, No. 3 (July 1948), Duke University, Durham, N.C., U.S.A. In English.

Discoloration of sea water caused by bloom or swarming of phytoplankton is a commonly reported phenomenon, although one far from being well understood. According to the authors of this paper, the discoloration may or may not be accompanied by

mortality ranging from the death of a few animals and species in a restricted area to mass mortality of catastrophic proportions. The Marine Laboratory of the University of Miami made certain observations throughout the 1946/47 sequence of outbreaks on the west coast of Florida, which are reported in this paper. The authors conclude that the mass death of marine organisms was associated with the flowering of the dinoflagellate Gymnodinium brevis which is specifically poisonous to marine animals when present in large numbers. It is suggested that changed meteorological conditions or other factors may have brought about changes of the water masses which increased the supplies of nutrient salts and led to a flowering of the plankton, especially Gymnodinium brevis.

Sea Turtles and the Turtle Industry of the West Indies, Florida and the Gulf of Mexico, with Annotated Bibliography. R.M. Ingle, and F.G. Walton Smith. A Special Publication of the Marine Laboratory, University of Miami in co-operation with the Caribbean Research Council. University of Miami Press, Miami, Florida, U.S.A., August 1949. 107 pp. In English.

Several hundred papers, reports, and personal communications have been abstracted, and the essential information regarding the biology of the given species of sea turtles indigenous to the Caribbean region and the condition of the industry are presented. It is concluded that, while some areas are overfished, others are suffering from reduced breeding activity only and that the principal danger to the industry as a whole is interference with the nesting turtle. Recommendations are made for the protection of the breeding turtles and their eggs. From an economic viewpoint, it appears more desirable to encourage domestic consumption and inter-island trade rather than attempt to revive a luxury or semi-luxury trade with the United States and the United Kingdom, particularly in view of the present considerable imports of protein food into the Caribbean area. It is stated that the yield of turtles was never sufficient to satisfy modern markets dependent upon a large and uniform volume.

The Fishes and Fisheries of the Gold Coast. F. R. Irvine. Crown Agents for the Colonies, England. xv + 352 pp., 217 figs., tables. In English.

The author and his collaborators cover a wide range of subjects related to the fishes and fisheries of the Gold Coast under twelve separate headings. The first section includes material on the bionomics of the marine, estuarine, and fresh-water fish fauna, with considerable data on migrations and distributions. The chapter devoted to the fishing industry covers its history, organization, fishing methods, and marketing practices. Following this, there is a section on the methods of curing and the species used, supplemented by suggestions for the future. Mention is made of fish poisons for catching purposes and conservation principles intimately associated with religious beliefs. Systematic material includes sections on classification, identification, and artificial keys for the fishes. In addition, crustaceans and other miscellaneous groups are listed. Finally, there is also information on West African fish imports and exports, a general bibliography, and a technical bibliography on fish preservation.

UNITS

Weight, volume, capacity, length, and area are expressed in metric units. "Tons" and "quintals," when not qualified, therefore mean "metric tons" (1,000 kilograms) and "metric quintals" (100 kilograms), respectively.

The term "dollars," unless otherwise specified, refers to U.S. dollars.

CONVERSION FACTORS

Converted from:	To:	Multiplier
General		
Pounds	Metric tons	0.0004536
Hundredweight (112 pounds)	" "	0.050802
Hundredweight (100 pounds)	" "	0.04536
Quintal (112 pounds)	" "	0.050802
Short ton (2,000 pounds)	" "	0.9072
Long ton (2,240 pounds)	" "	1.0161
U.S. gallons	Liters	3.7853
Imperial gallons	"	4.546
Fisheries products		
Hectoliter (herring or oil)	Metric tons	0.093
Wet-salted cod and allied species	Dried basis	0.66

SYMBOLS

... Not available

ø Negligible (less than half the unit used)

- Nil

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PACIFIC OCEANIC FISHERY
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Other FAO Fisheries Publications

FAO YEARBOOK OF FISHERIES STATISTICS - 1947

Published in Washington, D.C., August 1948. Bilingual, English and French, with Preface in Spanish. Photo-offset. 368 pp. Price US$4.00 or the equivalent.

Part I of this volume consists of 143 statistical tables on the import and export trade of 61 countries in fish and fisheries products since 1930. Part II contains 86 tables on (a) landings and (b) miscellaneous subjects such as the number of fishermen, craft, etc., for about 20 countries.

SALTED COD AND RELATED SPECIES

FAO Fisheries Study No. 1, English edition published in July 1949, Washington, D.C. Printed xii + 196 pp. French and Spanish editions in press. Price US$2.00 or the equivalent.

A comprehensive study of the factors influencing production and trade of salted cod and related species during the inter-war period, and an analysis of present problems of the salted cod industry. 67 pages of statistical tables.

WORLD FISHERIES ABSTRACTS

Beginning with the January-February issue

A bimonthly review of the technical literature on fishing and the fishing industry. The abstracts are prepared and arranged for card filing.